

Please amend the above-identified patent application, without prejudice, as follows:

IN THE SPECIFICATION:

IN THE CLAIMS:

— Amend claims 6 and 12 as follows:

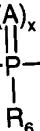
6. (amended) A method for the preparation of mono- or bisacylphosphines, mono- or bisacylphosphine oxides or mono- or bisacylphosphine sulfides comprising reacting a compound of formula I according to claim 1.

— 12. (amended) A photocurable composition comprising

(a) at least one ethylenically unsaturated photopolymerizable compound and

(b) at least one compound of the formula II according to claim 2 or at least one compound

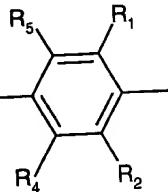
according to formula III      Ar— $\overset{\text{O}}{\underset{\parallel}{\text{C}}}$ — $\overset{(\text{A})_x}{\underset{\parallel}{\text{P}}}$ —Z<sub>1</sub>      (III), in which



A    is O or S;

x    is 0 or 1;

Ar    is a group



; or Ar is cyclopentyl, cyclohexyl, naphthyl, anthracyl,

biphenyl or an O-, S- or N-containing 5- or 6-membered heterocyclic ring, where the radicals cyclopentyl, cyclohexyl, naphthyl, anthracyl, biphenyl and 5- or 6-membered heterocyclic ring are unsubstituted or substituted by halogen, C<sub>1</sub>-C<sub>4</sub>alkyl and/or C<sub>1</sub>-C<sub>4</sub>alkoxy; R<sub>1</sub> and R<sub>2</sub> independently of one another are C<sub>1</sub>-C<sub>20</sub>alkyl, OR<sub>11</sub>, CF<sub>3</sub> or halogen; R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> independently of one another are hydrogen, C<sub>1</sub>-C<sub>20</sub>alkyl, OR<sub>11</sub> or halogen; or in each case two of the radicals R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> together form C<sub>1</sub>-C<sub>20</sub>alkylene which can be interrupted by O, S or -NR<sub>14</sub>;

$R_6$  is  $C_1$ - $C_{24}$ alkyl, unsubstituted or substituted by  $C_5$ - $C_{24}$ cycloalkenyl, phenyl, CN,  $C(O)R_{11}$ ,  $C(O)OR_{11}$ ,  $C(O)N(R_{14})_2$ ,  $OC(O)R_{11}$ ,  $OC(O)OR_{11}$ ,  $N(R_{14})C(O)N(R_{14})$ ,  $OC(O)NR_{14}$ ,  $N(R_{14})C(O)OR_{11}$ ,

cycloalkyl, halogen,  $OR_{11}$ ,  $SR_{11}$ ,  $N(R_{12})(R_{13})$  or  $\begin{array}{c} O \\ \backslash \\ -C-H \\ / \\ CH_2 \end{array}$ ;

$C_2$ - $C_{24}$ alkyl which is interrupted once or more than once by nonconsecutive O, S or  $NR_{14}$  and which is unsubstituted or substituted by phenyl,  $OR_{11}$ ,  $SR_{11}$ ,  $N(R_{12})(R_{13})$ , CN,  $C(O)R_{11}$ ,  $C(O)OR_{11}$ ,

$C(O)N(R_{14})_2$  and/or  $\begin{array}{c} O \\ \backslash \\ -C-H \\ / \\ CH_2 \end{array}$ ;

$C_2$ - $C_{24}$ alkenyl which is uninterrupted or interrupted once or more than once by nonconsecutive O, S or  $NR_{14}$  and which is unsubstituted or substituted by  $OR_{11}$ ,  $SR_{11}$  or  $N(R_{12})(R_{13})$ ;

$C_5$ - $C_{24}$ cycloalkenyl which is uninterrupted or interrupted once or more than once by nonconsecutive O, S or  $NR_{14}$  and which is unsubstituted or substituted by  $OR_{11}$ ,  $SR_{11}$  or  $N(R_{12})(R_{13})$ ;

$C_7$ - $C_{24}$ arylalkyl which is unsubstituted or substituted on the aryl group by  $C_1$ - $C_{12}$ alkyl,  $C_1$ - $C_{12}$ alkoxy or halogen;

$C_4$ - $C_{24}$ cycloalkyl which is uninterrupted or interrupted once or more than once by O, S and/or  $NR_{14}$  and which is unsubstituted or substituted by  $OR_{11}$ ,  $SR_{11}$  or  $N(R_{12})(R_{13})$ ; or  $C_8$ - $C_{24}$ arylcycloalkyl or  $C_8$ - $C_{24}$ arylalkenyl;

$R_{11}$  is H,  $C_1$ - $C_{20}$ alkyl,  $C_2$ - $C_{20}$ alkenyl,  $C_3$ - $C_8$ cycloalkyl, phenyl, benzyl or  $C_2$ - $C_{20}$ alkyl which is interrupted once or more than once by nonconsecutive O atoms and which is unsubstituted or substituted by OH and/or SH;

$R_{12}$  and  $R_{13}$  independently of one another are hydrogen,  $C_1$ - $C_{20}$ alkyl,  $C_3$ - $C_8$ cycloalkyl, phenyl, benzyl or  $C_2$ - $C_{20}$ alkyl, which is interrupted once or more than once by O or S and which is unsubstituted or substituted by OH and/or SH; or  $R_{12}$  and  $R_{13}$  together are  $C_3$ - $C_5$ alkylene which is uninterrupted or interrupted by O, S or  $NR_{14}$ ;

$Z_1$  is  $C_1$ - $C_{24}$ alkyl, which is unsubstituted or substituted once or more than once by  $OR_{15}$ ,  $SR_{15}$ ,  $N(R_{16})(R_{17})$ , phenyl, halogen, CN,  $-N=C=A$ ,  $\begin{array}{c} O \\ \backslash \\ -C-H \\ / \\ CH_2 \end{array}$ ,

$\begin{array}{c} A \\ || \\ -C-R_{18} \end{array}$ ,  $\begin{array}{c} A \\ || \\ -C-OR_{18} \end{array}$

and/or  $\begin{array}{c} A_1 \\ || \\ -C-N(R_{18})_2 \end{array}$  or  $Z_1$  is  $C_2$ - $C_{24}$ alkyl which is interrupted once or more than once by O, S

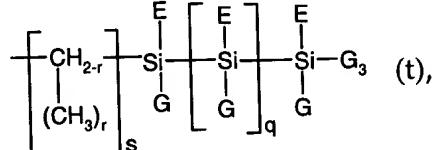
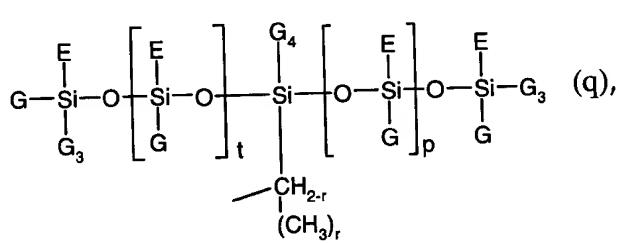
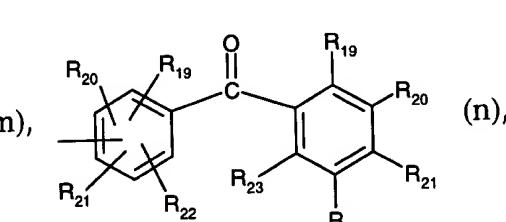
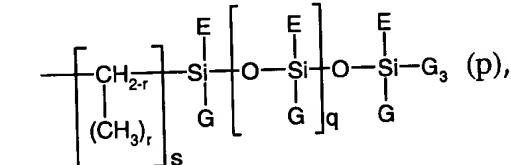
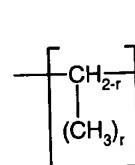
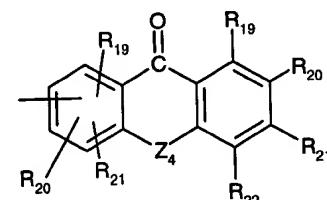
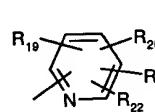
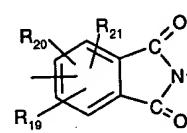
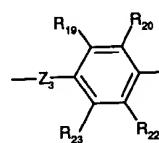
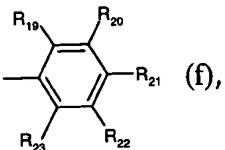
or  $NR_{14}$  and which can be substituted by  $OR_{15}$ ,  $SR_{15}$ ,  $N(R_{16})(R_{17})$ , phenyl, halogen,  $\begin{array}{c} O \\ \backslash \\ -C-H \\ / \\ CH_2 \end{array}$ ,

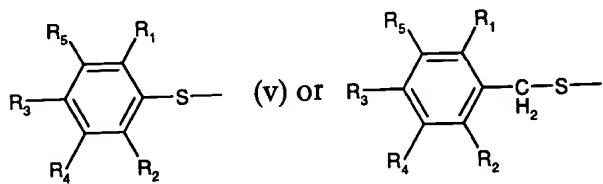
$\text{—C}=\text{A—R}_{18}$ ,  $\text{—C}(=\text{A})\text{—OR}_{18}$  and/or  $\text{—C}(=\text{A}_1)\text{—N}(\text{R}_{18})_2$ ; or  $\text{Z}_1$  is  $\text{C}_1\text{-}\text{C}_{24}$ alkoxy, which is substituted once

or more than once by phenyl, CN,  $-\text{N}=\text{C}=\text{A}$ ,  $\text{—C}(=\text{A}_1)\text{—CH}_2\text{—O—CH}_2$ ,  $\text{—C}(=\text{A})\text{—R}_{18}$ ,  $\text{—C}(=\text{A}_1)\text{—OR}_{18}$  and/or

$\text{—C}(=\text{A}_1)\text{—N}(\text{R}_{18})_2$ ; or  $\text{Z}_1$  is  $\text{—C}(=\text{A})\text{—OR}_{11}$ ,  $\text{—C}(=\text{A}_1)\text{—N}(\text{R}_{16})(\text{R}_{17})$ ,  $\text{—C}(=\text{A}_1)\text{—OR}_{11a}$  or  $\text{—C}(=\text{A}_1)\text{—N}(\text{R}_{18a})(\text{R}_{18b})$ ; or  $\text{Z}_1$  is unsubstituted  $\text{C}_3\text{-}\text{C}_{24}$ cycloalkyl or  $\text{C}_3\text{-}\text{C}_{24}$ cycloalkyl substituted by  $\text{C}_1\text{-}\text{C}_{20}$ alkyl,  $\text{OR}_{11}$ ,  $\text{CF}_3$  or halogen; unsubstituted  $\text{C}_2\text{-}\text{C}_{24}$ alkenyl or  $\text{C}_2\text{-}\text{C}_{24}$ alkenyl substituted by  $\text{C}_6\text{-}\text{C}_{12}$ aryl, CN,  $(\text{CO})\text{OR}_{15}$  or

$(\text{CO})\text{N}(\text{R}_{18})_2$ ; or  $\text{Z}_1$  is  $\text{C}_3\text{-}\text{C}_{24}$ cycloalkenyl or is one of the radicals





(v) or (w); or  $Z_1$  is  $C_1\text{-}C_{24}$ alkylthio, in which the alkyl

radical is uninterrupted or interrupted once or more than once by nonconsecutive O or S, and is unsubstituted or substituted by  $OR_{15}$ ,  $SR_{15}$  and/or halogen; with the proviso that  $Z_1$  and  $R_6$  are not identical;

$A_1$  is O, S or  $NR_{18a}$ ;

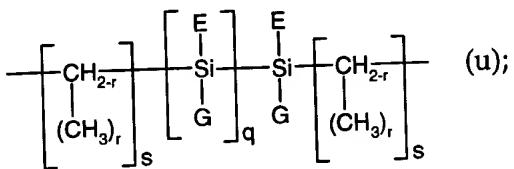
$Z_2$  is  $C_1\text{-}C_{24}$ alkylene;  $C_2\text{-}C_{24}$ alkylene interrupted once or more than once by O, S or  $NR_{14}$ ;  $C_2\text{-}C_{24}$ alkenylene;  $C_2\text{-}C_{24}$ alkenylene interrupted once or more than once by O, S or  $NR_{14}$ ;  $C_3\text{-}C_{24}$ cycloalkylene;  $C_3\text{-}C_{24}$ cycloalkylene interrupted once or more than once by O, S or  $NR_{14}$ ;  $C_3\text{-}C_{24}$ cycloalkylene;  $C_3\text{-}C_{24}$ cycloalkenylene interrupted once or more than once by O, S or  $NR_{14}$ ; where the radicals  $C_1\text{-}C_{24}$ alkylene,  $C_2\text{-}C_{24}$ alkylene,  $C_2\text{-}C_{24}$ alkenylene,  $C_3\text{-}C_{24}$ cycloalkylene and  $C_3\text{-}C_{24}$ cycloalkenylene are unsubstituted or are substituted by  $OR_{11}$ ,  $SR_{11}$ ,  $N(R_{12})(R_{13})$  and/or halogen;

or  $Z_2$  is one of the radicals ,

or , where these radicals are unsubstituted or are substituted on the

aromatic by  $C_1\text{-}C_{20}$ alkyl;  $C_2\text{-}C_{20}$ alkyl which is interrupted once or more than once by nonconsecutive O atoms and which is unsubstituted or substituted by OH and/or SH;  $OR_{11}$ ,  $SR_{11}$ ,  $N(R_{12})(R_{13})$ , phenyl, halogen,  $NO_2$ , CN,  $(CO)\text{-}OR_{11}$ ,  $(CO)\text{-}R_{11}$ ,  $(CO)\text{-}N(R_{12})(R_{13})$ ,  $SO_2R_{24}$ ,  $OSO_2R_{24}$ ,  $CF_3$  and/or  $CCl_3$ ;

or  $Z_2$  is a group (r) or



(u);

$Z_3$  is  $\text{CH}_2$ ,  $\text{CH}(\text{OH})$ ,  $\text{CH}(\text{CH}_3)$  or  $\text{C}(\text{CH}_3)_2$ ;

$Z_4$  is S, O,  $\text{CH}_2$ ,  $\text{C=O}$ ,  $\text{NR}_{14}$  or a direct bond;

$Z_5$  is S, O,  $\text{CH}_2$ ,  $\text{CHCH}_3$ ,  $\text{C}(\text{CH}_3)_2$ ,  $\text{C}(\text{CF}_3)_2$ , SO,  $\text{SO}_2$ , CO;

$Z_6$  and  $Z_7$  independently of one another are  $\text{CH}_2$ ,  $\text{CHCH}_3$  or  $\text{C}(\text{CH}_3)_2$ ;

$r$  is 0, 1 or 2;

$s$  is a number from 1 to 12;

$q$  is a number from 0 to 50;

$t$  and  $p$  are each a number from 0 to 20;

$E$ ,  $G$ ,  $G_3$  and  $G_4$  independently of one another are unsubstituted  $\text{C}_1\text{-C}_{12}$ alkyl or  $\text{C}_1\text{-C}_{12}$ alkyl substituted by halogen, or are unsubstituted phenyl or phenyl substituted by one or more  $\text{C}_1\text{-C}_4$ alkyl; or are  $\text{C}_2\text{-C}_{12}$ alkenyl;

$R_{11a}$  is  $\text{C}_1\text{-C}_{20}$ alkyl substituted once or more than once by  $\text{OR}_{15}$  or  $-\overset{\text{O}}{\underset{\text{H}}{\text{C}}}-\text{CH}_2$ ; or is  $\text{C}_2\text{-C}_{20}$ alkyl

which is interrupted once or more than once by nonconsecutive O atoms and is unsubstituted

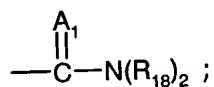
or substituted once or more than once by  $\text{OR}_{15}$ , halogen or  $-\overset{\text{O}}{\underset{\text{H}}{\text{C}}}-\text{CH}_2$ ; or  $R_{11a}$  is  $\text{C}_2\text{-C}_{20}$ alkenyl,  $\text{C}_3\text{-}$

$\text{C}_{12}$ alkynyl; or  $R_{11a}$  is  $\text{C}_3\text{-C}_{12}$ cycloalkenyl which is substituted once or more than once by halogen,

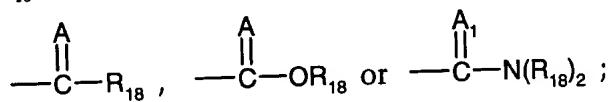
$\text{NO}_2$ ,  $\text{C}_1\text{-C}_6$ alkyl,  $\text{OR}_{11}$  or  $\text{C}(\text{O})\text{OR}_{18}$ ; or  $\text{C}_7\text{-C}_{16}$ arylalkyl or  $\text{C}_8\text{-C}_{16}$ arylcycloalkyl;

$R_{14}$  is hydrogen, phenyl,  $\text{C}_1\text{-C}_{12}$ alkoxy,  $\text{C}_1\text{-C}_{12}$ alkyl or  $\text{C}_2\text{-C}_{12}$ alkyl which is interrupted once or more than once by O or S and which is unsubstituted or substituted by OH and/or SH;

$R_{15}$  has one of the meanings given for  $R_{11}$  or is a radical  $-\overset{\text{A}}{\underset{\text{H}}{\text{C}}}-\text{R}_{18}$ ,  $-\overset{\text{A}}{\underset{\text{H}}{\text{C}}}-\text{OR}_{18}$  or



$R_{16}$  and  $R_{17}$  independently of one another have one of the meanings given for  $R_{12}$  or are a radical



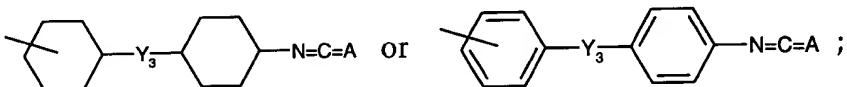
R<sub>18</sub> is hydrogen, C<sub>1</sub>-C<sub>24</sub>alkyl, C<sub>2</sub>-C<sub>12</sub>alkenyl, C<sub>3</sub>-C<sub>8</sub>cycloalkyl, phenyl, benzyl; C<sub>2</sub>-C<sub>20</sub>alkyl which is interrupted once or more than once by O or S and which is unsubstituted or substituted by OH; R<sub>18a</sub> and R<sub>18b</sub> independently of one another are hydrogen; C<sub>1</sub>-C<sub>20</sub>alkyl, which is substituted once

or more than once by OR<sub>15</sub>, halogen, styryl, methylstyryl, -N=C=A or  $-\text{C}(\text{O})\text{CH}_2$ ; or C<sub>2</sub>-C<sub>20</sub>alkyl,

which is interrupted once or more than once by nonconsecutive O atoms and which is unsubstituted or substituted once or more than once by OR<sub>15</sub>, halogen, styryl, methylstyryl or

$-\text{C}(\text{O})\text{CH}_2$ ; or R<sub>18a</sub> and R<sub>18b</sub> are C<sub>2</sub>-C<sub>12</sub>alkenyl; C<sub>5</sub>-C<sub>12</sub>cycloalkyl, which is substituted by -N=C=A or -

CH<sub>2</sub>-N=C=A and is additionally unsubstituted or substituted by one or more C<sub>1</sub>-C<sub>4</sub>alkyl; or R<sub>18a</sub> and R<sub>18b</sub> are C<sub>6</sub>-C<sub>12</sub>aryl, unsubstituted or substituted once or more than once by halogen, NO<sub>2</sub>, C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>2</sub>-C<sub>4</sub>alkenyl, OR<sub>11</sub>, -N=C=A, -CH<sub>2</sub>-N=C=A or C(O)OR<sub>18</sub>; or R<sub>18a</sub> and R<sub>18b</sub> are C<sub>7</sub>-C<sub>16</sub>arylalkyl; or R<sub>18a</sub> and R<sub>18b</sub> together are C<sub>8</sub>-C<sub>16</sub>arylalkylcycloalkyl; or R<sub>18a</sub> and R<sub>18b</sub> independently of one another are



Y<sub>3</sub> is O, S, SO, SO<sub>2</sub>, CH<sub>2</sub>, C(CH<sub>3</sub>)<sub>2</sub>, CHCH<sub>3</sub>, C(CF<sub>3</sub>)<sub>2</sub>, (CO), or a direct bond;

R<sub>19</sub>, R<sub>20</sub>, R<sub>21</sub>, R<sub>22</sub> and R<sub>23</sub> independently of one another are hydrogen, C<sub>1</sub>-C<sub>20</sub>alkyl; C<sub>2</sub>-C<sub>20</sub>alkyl, which is interrupted once or more than once by nonconsecutive O atoms and which is unsubstituted or substituted by OH and/or SH; or R<sub>19</sub>, R<sub>20</sub>, R<sub>21</sub>, R<sub>22</sub> and R<sub>23</sub> are OR<sub>11</sub>, SR<sub>11</sub>, N(R<sub>12</sub>)(R<sub>13</sub>), NO<sub>2</sub>, CN, SO<sub>2</sub>R<sub>24</sub>, OSO<sub>2</sub>R<sub>24</sub>, CF<sub>3</sub>, CCl<sub>3</sub>, halogen; or phenyl which is unsubstituted or substituted once or more than once by C<sub>1</sub>-C<sub>4</sub>alkyl or C<sub>1</sub>-C<sub>4</sub>alkoxy;

or in each case two of the radicals R<sub>19</sub>, R<sub>20</sub>, R<sub>21</sub>, R<sub>22</sub> and R<sub>23</sub> together form C<sub>1</sub>-C<sub>20</sub>alkylene which is uninterrupted or interrupted by O, S or -NR<sub>14</sub>;

R<sub>24</sub> is C<sub>1</sub>-C<sub>12</sub>alkyl, halogen-substituted C<sub>1</sub>-C<sub>12</sub>alkyl, phenyl, or phenyl substituted by OR<sub>11</sub> and/or SR<sub>11</sub>;

with the proviso that R<sub>6</sub> and Z<sub>1</sub> are not identical,

as photoinitiator.